

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A demodulator for a mobile phone comprising:

a received error rate improving means which improves a received error rate by weighting differences of symbols before and after a current symbol to be demodulated and ~~applying~~ providing the weighted differences as feedback;

a weighting means for applying weighting to one or more correction values provided from an external loop, wherein the correction values are generated after the current symbol is detected ~~detection of an external loop~~; and

a deciding means for deciding an order of priority for ~~a plurality of~~ the one or more weighted correction values,

wherein the demodulator is operable to adapt itself to various radio wave environments and different kinds of noise by using said weighting means and said deciding means.
2. (previously presented): A demodulator for a mobile phone in accordance with claim 1, further comprising:

a delay circuit and an adder for obtaining a detected phase difference for said current symbol to be demodulated.
3. (previously presented): A demodulator for a mobile phone in accordance with claim 1, further comprising:

delay circuits and adders for obtaining phase differences for the symbols before and after said current symbol to be demodulated.

4. (previously presented): A demodulator for a mobile phone in accordance with claim 3, further comprising:

operation circuits operable to obtain a received quality as a difference between each respective phase difference between symbols obtained at said delay circuits and said adders and an ideal value.

5. (previously presented): A demodulator for a mobile phone in accordance with claim 4, wherein said adders input said received quality during the current symbol to be demodulated by using a feedback circuit.

6. (previously presented): A demodulator for a mobile phone in accordance with claim 3, further comprising:

a dividing circuit operable to use outputs from said adders, in case that said detected phase difference at said current symbol to be demodulated includes a difference generated by not detecting phase correctly.

7. (previously presented): A demodulator for a mobile phone in accordance with claim 1, further comprising:

weighting circuits operable to attenuate feedback amounts to avoid a divergence of operated results in case that said feedback amounts are large when said adders input said differences by said feedback circuit.

8. (previously presented): A demodulator for a mobile phone in accordance with claim 3, further comprising:

logic circuits operable to perform bit expansion at input terminals of said adders and also perform bit expansion for values to be applied via feedback and decrease round-off error by omitting designated subordinate bits after all operation is finished and returning the number of bits to an original number.

9. (currently amended): A demodulating method for a mobile phone comprising:
applying weighting to differences of symbols before and after a current symbol to be demodulated and applying feedback;

applying weighting to one or more correction values, wherein the correction values are calculated by after-of an external loop inputted with phase difference data of the current symbol after the current symbol is detected;

deciding an order of priority for ~~a plurality of~~ the one or more correction values,
wherein various radio wave environments and different kinds of noise are accommodated.

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10. (previously presented): A demodulating method for a mobile phone in accordance with claim 9, further comprising:

delaying and adding signals to obtain a detected phase difference at said current symbol to be demodulated.

11. (currently amended): A demodulating method for a mobile phone in accordance with claim 9, further comprising:

delaying and adding signals to obtain a detected phase ~~differences~~ difference before and after said current symbol to be demodulated.

12. (previously presented): A demodulating method for a mobile phone in accordance with claim 10, further comprising:

obtaining a received quality as a difference between each respective phase difference between symbols obtained during said delaying and adding and an ideal value.

13. (previously presented): A demodulating method for a mobile phone in accordance with claim 12, wherein said adding signals process inputs said received quality during the current symbol to be demodulated by using feedback.

14. (previously presented): A demodulating method for a mobile phone in accordance with claim 11, further comprising:

demodulating using results from said adding process, in case that said detected phase difference at said current symbol to be demodulated includes a difference generated by not detecting phase correctly.

15. (previously presented): A demodulating method for a mobile phone in accordance with claim 9, further comprising:

attenuating feedback amounts to avoid a divergence of operated results in case that said feedback amounts are large when said adding process inputs said difference by said feedback.

16. (previously presented): A demodulating method for a mobile phone in accordance with claim 11, further comprising:

performing bit expansion on inputs of said adding process and also performing bit expansion on values to be applied as feedback and decreasing round off error by omitting designated subordinate bits after all operations are finished and returning the number of bits to an original number.

17. (new): A demodulator for demodulating digital symbol data comprising:

a first weighting circuit that applies respective first weighting factors to one or more correction values generated by an external circuit;

a detecting circuit that detects and outputs a difference between a current symbol and a delayed symbol; and

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a second weighting circuit that applies respective second weighting factors to the detected difference output from said detecting circuit.

18. (new): A demodulator as claimed in claim 17 further comprising:
a deciding circuit that determines an order of priority for the one or more weighted correction values.

19. (new): A demodulator as claimed in claim 17 wherein the external circuit comprises an automatic frequency control circuit.

20. (new): A demodulator as claimed in claim 17 wherein the external circuit receives as an input the output of said detecting circuit.